We claim:

1. A non-human transgenic animal having binding to the melanocortin 4 receptor function inactivated.

2. The animal of claim 1 wherein the animal expresses a molecule from a genetically engineered construct stably integrated into its genome wherein the molecule binds to the melanocortin 4 receptor.

3. The animal of claim 2 wherein the molecule is a syndecan.

4. The animal of claim 2 wherein the molecule is expressed preferentially in the hypothalamus.

5. The animal of claim 4 having incorporated therein a construct including a cytomegalovirus promoter or portion thereof including the intermediate/early enhancer.

6. The animal of claim 1 having the genotype FVB/N-TgN(synd-1).

7. ~~A genetically engineered construct for making a transgenic animal~~ comprising a promoter and a nucleic acid molecule encoding a syndecan, wherein the syndecan is preferentially expressed in the hypothalamus.

8. The construct of claim 7 wherein the promoter is the cytomegalovirus promoter or a functional portion thereof including the intermediate/early enhancer.

9. The construct of claim 7 wherein the syndecan is syndecan-1.

10. A method for screening for compounds which can alter body weight comprising

administering a compound to a non-human transgenic animal having binding to the melanocortin 4 receptor function inactivated, and

observing whether there is a change in body weight over a period of time.

11. The method of claim 10 wherein the animal expresses a molecule from a genetically engineered construct stably integrated into its genome wherein the molecule binds to the melanocortin 4 receptor.

12. The method of claim 10 wherein the molecule is a syndecan.

13. The method of claim 11 wherein the molecule is expressed preferentially in the hypothalamus.

14. The method of claim 13 wherein the animal has incorporated therein a construct including a cytomegalovirus promoter or portion thereof including the intermediate/early enhancer.

15. The method of claim 14 wherein the animal has the genotype FVB/N-TgN(synd-1).

16. A composition for altering body weight obtained by administering a compound to an animal as defined by any of claims 1-6 and observing a change in body weight over a period of time.

17. The composition of claim 16 wherein the compound is a syndecan or a mimic thereof of its binding ability.

18. The composition of claim 17 wherein the compound can pass the blood brain barrier.

19. A method for regulating body weight comprising administering to the animal a compound which interferes with melanocortin 4 receptor function.

20. The method of claim 19 wherein the compound is a syndecan or a mimic thereof of its binding ability.

21. The method of claim 20 wherein the compound can pass the blood brain barrier.

22. The method of claim 19 wherein the compound is administered by genetically engineering the animal to express a compound blocking binding to melanocortin 4 receptor.

23. The method of claim 19 wherein the compound is administered as a pharmaceutically acceptable composition.

24. The method of claim 19 wherein the animal has a wasting disorder.

25. The method of claim 24 wherein the disorder is selected from the group consisting of idiopathic obesity, anorexia nervosa, and cachexia due to disease, for example, cancer, cancer chemotherapy, chronic inflammatory diseases, rheumatoid and collagen diseases and chronic infections.